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to the work of the experiment stations themselves. I cannot help feeling that much of their effort has not been so economically applied as it might be. It is, of course, an interesting fact to know what the growing power of a pumpkin is, for example. How many tons a water-melon vine can lift in the course of a year, and similar items of information, may, in the course of time, when all added together, produce valuable practical results; but I cannot but believe that a much larger share of the time and effort should be devoted to ascertaining the possible uses of the thousand-and-one forms of vegetable life around us. Man progresses but slowly. Of the thousands of plants which cover the face of the earth we have found use for comparatively few. They are mostly still ranked in the category of weeds, i.e., useless or injurious plants. It has not been so very long since the potato was in this category. Now it is my opinion that every plant has some valuable use or other if we only knew it. It is pre-eminently the work of such scientific stations to enlarge the number of useful plants by such experimentation as shall test their applicability to one or another of the practical arts. He who makes two blades of grass to grow where only one grew before is a benefactor of the race. How much more a benefactor he who gives two useful plants instead of one. Who can calculate the advantage to humanity of the development of the potato or of the sugar beet?

The scientific experimental station, then, should give us new plants, naturalize those already known, and determine the best conditions for the cultivation of all kinds which may be made to grow in any given locality. The same thing should be done, of course, for animals as for vegetables. There is little doubt that in each State, for example, many plants and animals could be profitably cultivated which are practically unknown at present. The experimental stations should work at these problems until they are successfully solved. I say at each station, for the station of Pennsylvania, or that of Illinois, or Ohio, will benefit Alabama only indirectly, since crops which will grow very well in the former States will not grow well in the latter, and many which might prove profitable in the latter would not grow in those States at all. Each locality must solve its own problems in this respect for itself. It has been found, for example, even in such a small country as Germany, that a beet which will produce a large quantity of sugar in one part of the country, when taken to another loses its sugar very quickly. How much more would that be the case in such a country as our own.

Let us keep up our experiment stations then. Watch them closely, to see that they are at work at useful things, but support them liberally. See to it that the federal government, which has now begun the support of these institutions, shall deal liberally with them. Give them all the money they can wisely use. We shall find that that will be a great deal, and you will find that it will very well pay for itself.

HEALTH MATTERS.

The Tetaniferous Man.

VERNEUIL applies this term to the individual who carries the virus of tetanus around on his person, although unaffected by the disease himself. The author discusses the causes and means of prevention of this affection from a clinical standpoint. If one considers the horse, with its secretions, excretions, and surroundings, as all-capable of propagating tetanus, we cannot regard as impossible infection by the secretions and excretions of man. The

tetanic property of equine saliva has been demonstrated. The saliva of a human being may, for the time being, contain tetanus germs, and thus a bite from such an individual may cause tetanus. A case is given illustrating this. The secretions and excretions are only infected by the ingesta, so that the sperm, milk, and urine are never infected by the virus. He says, according to the *University Medical Magazine*: "I have already admitted, and now I admit more than ever, that a surgeon who has dressed a tetanoid patient may communicate the disease to other patients. I also admit that any person whatever, but above all a physician whose hands have been in contact with a horse, not tetanic, but simply tetaniferous, may infect the wounds of his fellow-beings, as in the cases cited. I also admit, finally, that such a man is not only dangerous to those whom he approaches, but may even give himself tetanus by auto-inoculation, either by wounding a part of the skin impregnated with the virus, as the plantar and palmar regions, or touching a wound on any part of his body with his impure hands." Two cases follow, in which he traces the cause to a wound inflicted on the skin, which was previously infected with the tetanic virus. The bacillus of Nicolaier was found in one of these cases. Three additional cases are given with a very careful analytical study of each.

London's Soot.

The amount of carbonaceous and other particles deposited upon glass houses is a good indication of what the London atmosphere contains, and in many places it is only possible to procure a due admission of light to the plants by frequently washing the glass roofs. At one establishment, says the *Pharmaceutical Record*, two tanks constructed to collect the rain from a house completed a few years since, were cleared out, and no less than ten barrow-loads of sooty matter were removed, all of which must have been conveyed into the tanks from the glass. One scientific man has been engaged in computing the amount of soot deposited from London air, and arrived at the following conclusions. He collected the smoke deposited on a patch of snow in Canonbury one square link (about 8 inches) in extent, and obtained from it two grains of soot. As London covers 110 square miles, this would give us for the whole area 1,000 tons. As the quantity measured fell in 10 days, a month's allowance would need 1,000 horses to cart it off, and these stretched in a line would extend four miles.

Origin and Role of Pus Cells.

Professor Ranvier made an interesting communication at a recent meeting of the Academy of Sciences on the origin and significance of pus cells. He said (*Brit. Med. Jour.*) that for some years past histologists generally were agreed that the cells of pus were none other than the white corpuscles of the blood, which had emigrated from the vessels at the time suppuration was set up. He found it difficult, however, to believe that the blood could yield in this way, and in a time comparatively short, the enormous quantity of pus found in many pathological conditions, such, for example, as the purulent infection of wounds, accidental and operative. That the white cells do emigrate in the manner generally accepted he had no doubt. This takes place under normal physiological conditions, while it is still more pronounced in certain pathological states not ending in actual inflammation, in the process of which it is, of course, abundantly evident. What his experiments led him to establish, however, was that pus cells had also quite another origin, viz., the transformation into lymph cells of clasmotocytes, elements derived from migratory cells, which under the influence of irritation revert to an embryonic condition and proliferate rapidly. As to the rôle of the pus cells, M. Metchnikoff has shown the importance of lymphatic cells in the combat of the organism against microbes. In simple inflammation determined by caustics, or other irritant agents, their rôle is not less important. They eliminate the dead elements, and thus prepare the way for the processes of regeneration.

The Value of the Tongue as a Respirator.

J. M. Elborough writes as follows to the *Lancet*: It is not generally known that nature has provided each of us with the best respirator always at hand in the tongue. For years I have per-

sonally relied on this alone, and have recommended this proceeding to many patients. When facing a cold east wind, or breathing quickly the night air, I never quite close my mouth, but purposely keep the lips a trifle parted, and at the same time curl up my tongue towards the roof of my mouth until the tip reaches as far back as the soft palate, and I gently press the arched under surface of the tongue in some degree against the hard palate (a little practice soon makes this easy to do). The cold air then, as it enters the mouth, strikes against the under surface of the tongue, as well as the floor and sides of the mouth, and is made to pass in a somewhat circuitous manner between the sides of the tongue and the buccal mucus membrane of the pharynx, being thereby warmed in its course, so that by the time it reaches the larynx it is nicely rid of chill, and does not excite cough and catarrh. At the same time a certain quantity of air, of course, finds its way through the nasal passages to the chest, and it is obvious that a larger quantity of cold air can be effectually warmed by this method of procedure than by relying on either the nose or mouth alone. That the large blood-supply of the tongue renders this organ an excellent air warmer must be obvious to all.

The Sense of Taste in the Larynx.

For many years it has been known to histologists that the specific end-organs of taste, namely, the taste-bulbs, occur on the posterior or inner surface of the epiglottis, but up till now the physiological proof of the existence of the sense of taste in the epiglottis has not been forthcoming. Michelson, according to the *British Medical Journal*, Aug. 8, under Langendorff's direction, made a number of experiments, which show that the inner surface of the epiglottis is endowed with taste. A Schroetter's laryngeal sound, tipped with a solution of quinine or saccharine, was introduced into the larynx, and the drop of the sapid substance was cautiously brought into contact with the inner surface of the epiglottis. Positive results were obtained, which were controlled by the sensation — electrical taste — known to be produced by electrical stimulation. It seems, therefore, proved that a part of the nerve fibres passing to the larynx are nerves of taste.

LETTERS TO THE EDITOR.

*** * Correspondents are requested to be as brief as possible. The writer's name is in all cases required as proof of good faith.*

On request in advance, one hundred copies of the number containing his communication will be furnished free to any correspondent.

The editor will be glad to publish any queries consonant with the character of the journal.

An Upright-Walking Lizard.

I REMEMBER reading, some time ago, a report of the discovery of the fossil remains of a large lizard-like creature which must have walked upright on its hinder limbs. The saurians which made the footprints found in some sandstone formations probably walked in the same manner. But it may not be generally known that at least one existing species of lizard habitually runs erect on its hind-legs. This little fellow I noticed, in May, 1891, on the Mojave Desert of California, between Mojave and Death Valley. He is about one foot in length, of color varying from pale yellow to orange. His forward limbs are short and slender. While feeding, he holds his food in his fore-paws, much as a squirrel holds a nut. While seeking food, or resting, he remains on "all fours," but on starting off, especially if frightened, he rises on his hinder legs and runs away very swiftly, the action of the legs having a ridiculous resemblance to those of a small boy "in a hurry." I have seen one of these lizards run in this manner for thirty or forty yards.

C. W. KEMPTON.

New York, Sept. 8.

The Application of Concussion to Suspended Mist.

PROFESSOR H. A. HAZEN's recent criticism of the rain-making experiments seems well-timed. As Espy made important additions to the theory of latent heat as applied to the uprising moist air in cyclones, would it not be well to try the experiment of successive concussions upon suspended mists. If very small drops of rain collect upon a window pane any sudden jar will cause the small drops to coalesce into large drops. Then why is it not pos-

sible to produce a like effect upon small floating rain particles? The concussion from a lightning flash usually results in an immediate downpour. By all means let those who have experimented come forward with the results.

WILLIAM A. EDDY.

Bergen Point, N.J., Sept. 5.

AMONG THE PUBLISHERS.

THE S. Carson Company, San Francisco, have just published "Forensic Eloquence," by John Goss, a treatise on the theory and practice of oratory as exemplified in great speeches of famous orators.

— D. C. Heath & Co., Boston, have issued "A Brief Spanish Grammar," by Professor Edgren of the University of Nebraska.

— Professor W. S. Chaplin, professor of engineering at Harvard University since 1880, has been elected chancellor of Washington University of St. Louis.

— The Tragedy of the Cæsars" is the title of a new work by the Rev. S. Baring Gould that Methuen & Co. have in the press and hope to issue shortly. It will be illustrated from busts, gems, cameos, etc.

— Houghton, Mifflin, & Co. will publish on the 12th the first two volumes of the new large-paper edition of the works of Oliver Wendell Holmes; and a new cheaper edition of S. P. Langley's "The New Astronomy."

— Major Wissmann's new book of African travel from the Kongo to the Zambesi, in the years 1886 and 1887, which he calls "My Second Journey Through Equatorial Africa," will be published in England by Chatto & Windus. The volume will contain a map and nearly a hundred illustrations.

— Messrs. Macmillan & Co. intend to publish soon a series of popular sketches on the history of astronomy from the earliest times to the present day, in the form of a volume containing three courses of lectures on astronomical biography by Professor Oliver Lodge, F.R.S. The work will be fully illustrated, and will bear the title "Pioneers of Science."

— The assiduous biographer of Dr. Johnson, James Boswell, would certainly approve of the devotion of his own biographer, Mr. Percy Fitzgerald, who has written a "Life of James Boswell," which is to be published shortly by D. Appleton & Co. Mr. Fitzgerald has made a book full of anecdotes. It will contain portraits of Boswell and of Dr. Johnson.

— Charles Scribner's Sons have in preparation a series of concise biographies of the men whose systems have marked successive stages in the progress of education, from Aristotle to Dr. Arnold. It will be edited by Professor Nicholas Murray Butler of Columbia College. Mr. Thomas Davidson will undertake Aristotle; J. G. Fitch, Pestalozzi; J. Courthope Bowen, Froebel; Professor Butler, Horace Mann.

— The recently completed fifth edition of Dr. M. Foster's well known "Text-Book of Physiology" will be followed at once by the appearance of a sixth and cheaper edition of the work in parts, carefully revised throughout by the author. The addition of much new matter to this edition of the book will permit of taking out a copyright on the American edition, which is to be published by Macmillan & Co.

— Roberts Brothers will publish soon a new volume in Miss Wormeley's series of translations from Balzac's works, entitled "An Historical Mystery," being one of the "Scenes from Political Life;" a complete edition of Burnand's "Happy Thoughts," and the first American edition of the same author's "More Happy Thoughts;" the third volume of Renan's "History of the People of Israel," treating the subject from the time of Hezekiah till the return from Babylon; and "Four and Five," by Edward Everett Hale, which is a continuation of the "Ten Times One" series.

— The aim of "The Transition-Curve Field-Book," by Conway R. Howard, C.E. (New York, Wiley), is to furnish plain, practical rules and examples for guidance in adjusting and locating a curve, nearly identical with the cubic parabola, as a transition-curve in connecting circular railway curves with tangents. The work is